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CENTRAL ASIA DEVELOPMENT GROUP, JO # 23 FINAL REPORT

Report for RAMP-CLIN 0004-JO# 23-CADG

**RAMP/CADG
MARCH 2006**

March 2006

**Final RAMP Report
Kandahar and Helmand Provinces
Afghanistan**



Rebuilding Agriculture Markets in Southern Afghanistan

Prepared by:



Central Asia
development group





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Section 1 – Narrative



CADG has started working in Afghanistan in 2002 on a USAID co-operative agreement (Cotton and alternative crops program). In 2003 we have developed a proposal to RAMP using our experience gained under USAID to further improve agriculture by emphasizing the development of the farmer and increase our capacity around southern Afghanistan. On 1 March 2004 the RAMP program started in a few

districts of Helmand and Kandahar. Since then we have extended our activities under the Ramp and USAID programs, in 4 provinces, Helmand (13 districts Ramp / USAID), Kandahar (7 Ramp / USAID), Zabul (2 Ramp / USAID), Uruzgan (6 USAID). Under the Ramp program we have employed 146 Afghans and 6 Internationals.

Our primary goal is to develop farmer's agricultural practices and rebuild necessary infrastructure in order to improve / increase market access. Whilst achieving these goals, we have established many long term, mutually beneficial partnerships between the communities of southern Afghanistan and CADG, resulting in an increase of trust between our extension works and the farmers.

Section 2 – Project Details

1. Job Order Number: #23-0004-CADG – Central Asia Development Group (CADG)

- Contract Approval Date: 17 February 2004
- Actual Start Date: 1 March 2004
- Contract Completion Date: 30 June 2006

2. Implementing Agency - **Central Asia Development Group (CADG)**

- Contact: Mike Koch (mike@central-asia.net) on 0093 (0)799 250059.

(CLIN: CLIN0004: Agricultural Technology and Market Development)

3. Reporting Period: March 2004 to March 2006

4. Total Project Budget: **US \$4,265,208.00**





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Section 3 – Agricultural Achievements

a. Drip Irrigation System

In any agriculture, water is the most important factor for the development of crops, so this prolonged drought has led us to investigate methods of farming which allows a reduction in the amount of water required per hectare, with out decreasing yields per hectare. Drip irrigation and weed control meet this requirement.

Drip irrigation is increasingly being used in countries that face water shortages, and it has been shown that if the irrigation 'drip' systems are well managed, increased yields and lower labor costs can be achieved. This combination results in higher net incomes for farmers.



CADG has worked with the one of the world leaders in drip irrigation technology, Netafim, to introduce new systems into Kandahar and Helmand provinces in order to test their success. In May 2004 CADG purchased 30 low pressure systems for use on plots of between 1- 2 hectares, and also some smaller 'family drip' systems for use on plots of between 500 – 1000m². One high pressure system was also imported for use on a plot of 12 hectares.

CADG agricultural staffs have worked hard to install the systems without delay, and have assisted by a Netafim drip irrigation technician and an Agronomist who worked alongside the Afghans for 6 months.



In 2005 CADG imported 200 drip systems able to do 1 hectare each under Alqip (Alternative Livelihood Quick Impact program). See separate report on these results for Alqip.

The extension workers have worked with the farmers to make sure the drip systems are used correctly to meet the needs of the crop, and to help overcome any teething problems. As the





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application of drip irrigation is very different to the traditional method of flood or furrow irrigation, it is a long-term task converting farmers to the new methods. It will take a few years before farmers master drip irrigation.

Our team of extension workers have been collecting and checking all the data from the crops grown under drip in order to evaluate costs, water usage and yields and compare them with traditional irrigation techniques, such as flooding and furrow irrigation. These results are shown in our impact portion of this report and in our ALQIP and RAMP demo data base. In general terms, what we have found is that, provided farmers use the systems properly, irrigation by drip brings the following benefits:

- Water savings of up to 40%
- Reduction of weed growth
- Higher yields
- Labor savings
- Keeping of the root zone wet and soft allowing healthy root growth
- More efficient use of fertilizer
- Vigorous growth
- Reduction of pests and disease

Farmers are impressed by the neatness and low labor commitment for drip, particularly for vineyard and family drip. The drip irrigation systems are slowly become more popular in Afghanistan as more and more farmers would like to switch to drip irrigation. At this stage the cost of the system is a constraint (\$2800 per hectare).



Our family drip systems have also proved very popular. Farmers like them as they are low maintenance and are easily installed close to their houses. These family drip systems have not been as successful as our full size drip irrigation system and it is highly recommended that farmers use full size drip irrigation systems rather than family drip. The poor quality of the irrigation water and the lack of filtered water quickly blocked the emitters and rendered the drip lines useless in the 2nd season.

Our extension workers are undoubtedly more confident with the systems now and have gained experience at handling the maintenance of the systems and are passing this knowledge on to the farmers. Currently we have installed 80 full size drip irrigation and 54 family drip systems under the RAMP program.





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b. Plastic Tunnels

One large problem southern Afghanistan faces is huge sand storms and harsh weather conditions. Many crops are unable to survive in Afghanistan without some kind of protection from the elements.

Winters are especially bad and the damage to crops caused by frost, prevent the production of any vegetable crops in the period November to March. To solve this problem we have introduced plastic tunnels (greenhouses) to protect crops from frost and severe cold that would otherwise kill the crops. The tunnel creates a warmer microclimate that enables plants to grow through the winter. Farmers that own plastic tunnels can now grow crops during the so-called 'off-season' for these crops as the damage due to temperature is now minimized. When crops are grown off-season farmers receive higher prices as there is a demand that surpasses the supply in the market at these times. The higher income farmers are able to generate by off-season crops more than makes up for the cost of the technology employed. In the plastic tunnels it is easier to control pests and viruses that infect the plants, the production area is also intensified.

Using the tunnels to stretch the production period is also serving to reduce the absolute peaks in supply, thus the flooding of the market in peak harvest times is reduced leading to better prices. Year after year we are seeing the summer crops overload / flood the market with all the same fruits and vegetables such as tomatoes, cucumber, okra and watermelons resulting in a low selling price for these crops. Currently we have installed 65 walk-in plastic tunnels of 300 m².

In 2005 we first introduced the practice of placing small hoops across the irrigation furrows and covering hoops including the 2 rows of plants with a narrow strip of plastic (about 1.5m strip). (Pictured on the right) Farmers could now plant the spring crops in middle to late February, instead of the usual late March to April 'spring' plantings. Although this was very labor intensive as it required daily opening and closing to do weeding etc, the benefits of early harvest, increased yield and better prices far outweighed the hassles factor.



Once farmers have seen the huge potential of these small plastic tunnels there is a demand for the larger walk-in tunnels, in which the entire crop could be grown for the whole season. With these tunnels the plants receive



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the full benefit of having a manipulated micro climate which produces good growing conditions. On the left, is an example of one of our large plastic tunnels (300m²) being used by a farmer using best practices. These tunnels are sold to farmers at \$500 each, which is 20% of the actual cost.

We have also placed one plastic tunnel in each of the districts in Helmand and Kandahar as demonstration plots in order to attract more farmers to buy these tunnels. The reason for this is that the farmers in Helmand Central area, which is close to the largest market, have realized the value of them far more than those in the outlying districts.

c. Tree Nursery and Orchard establishment, budding and grafting

A great deal of effort has been taken to ensure that both our extension workers and the farmers who have orchards and vineyards know the proper techniques of budding and grafting trees. Budding is the insertion of a bud from a selected variety under the bark of a seedling tree (normally a hardy tree such as Apricot). The reason for this is that often the varieties that produce good fruit do not have a very good hardy root system and would therefore not grow naturally.



So an apricot pip is planted, at the start of winter (November), as it has good rooting capabilities and can stand the harsh conditions. One year later a bud is applied a month or so before winter (September/October). After another year the bud grows into a tree which is then ready to be planted into an orchard during the late winter (February). This means that it takes 3 winters before the first orchard is planted after establishing the nursery.



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First a T cut is made and the bark lifted slightly. Then a bud is cut out of a twig cut from the selected variety and slid up into the T, under the flaps of bark. Once in the slot, the bud is wrapped tightly in place with budding tape to seal it off from the air and prevent it from drying out (a strip of stretchy plastic). A few weeks later the bud and the bark have formed a union and the bud starts growing. In the winter the rootstock is pruned down to just above the bud union. We have been able to establish 106 what we call 'micro nurseries', as they only comprise 500m², across southern Afghanistan, which is above our initial goal of 78 micro nurseries.

Each nursery can produce about 5000 plus, saplings. If farmers produced good healthy trees and wanted to sell them they could earn between 30 and 50 Afs each. Most of the trees however are used for own orchard plantings. This year these nurseries produced about 50,000 saplings for the market, next year (Jan 2007) will see about 255,000 trees ready for the market and the year after (Jan, 2008) will have about 225,000 saplings ready for the market. For this reason there are no producing orchards established under the Ramp program as the first orchards are only just established.

d. Seed selection and manipulation

We have established practical applied research farms in Kandahar and Lashkar gah provinces to test for the best varieties of seeds for every crop before we have distributed them to farmers. This ensures that the farmer can rely on producing good results from our demonstrations. Examples of seed selection are Canola (the Flint variety), Okra (the Clemson Spineless and Harialy varieties), Cotton (Acala DP 6204), Peanut (a local Jumbo selection), and Durham Wheat.

The use of inoculums for certain seed treatments, such as Soy Bean, has been demonstrated in order to affirm the importance for farmers to use them prior to planting. Without research trials these practices would remain unproven and unused!



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e. Sunn Pest Program

CADG has successfully carried out training and information programs during the past 4 years to educate the wheat farmers on the successful eradication or control of Sunn Pest. Sunn Pest is a small stink bug that sucks the sap from the wheat grain just before the wheat grains ripen. Just 3% of damaged



grains are enough to have a consignment of wheat downgraded from 1st grade to 2nd or 3rd grade as it causes the dough made from this flour to lose its elasticity and have a bitter taste.

Last year (2005), after completing the initial survey of the wheat fields it has been established that nine of the Helmand districts are infested by Sunn Pest to varying degrees.

A total of 6000 nets have been distributed and used by farmers for mechanical control of this pest, to no avail. The use of insecticides became necessary. Lashkar gah PRT and the Helmand Ministry of Agriculture purchased and distributed enough insecticide for 15,000 hectares.

CADG Sunn Pest extension workers have trained in excess of 1000 farmers in the safe use of chemicals and the correct use of spraying equipment. In cooperation with the Helmand Ministry of Agriculture and the PRT, CADG extension workers ensured that the persons and farmers spraying have been adequately trained and protected from exposure to the insecticides that and that there is no misuse of these insecticides. CADG distributed 744 sprayers and the accompanying safety clothing in the 9 districts.

CADG Sunn Pest workers, together with the PRT Chemical only sprayed 15,787 Ha, but due to the extension work and radio broadcast at least a further 16,818 ha have been sprayed by farmers themselves. This out of a total area of 75,390 ha, of which an estimated 60,391 ha was infested with Sunn Pest.

The 2005 Sunn pest program has officially ended with the survey of wheat kernels. Samples have been taken from treated plots as well as untreated plots and compared for the level of kernel damage. The results from this survey showed a marked





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decrease in the damage of treated plots. As soon as there is 3% or more damage to the wheat kernels, the wheat becomes unacceptable for the making of bread. The program is a success, but it needs to continue as farmers still suffer from wheat damage due to Sunn pest s.

In 2006 CADG has once again carried out the Sunn Pest program and the results are still not confirmed. The program was started on time (this time) in November and will end in June, after the harvest is in. Careful studies have been done this year to determine the efficacy of the nets and also of chemical applications to be able to better advise the farmers in future. What has been interesting from preliminary work done is that the nets can catch up to about 50% of the Sunn pest bugs if repeated at least 3 times in the early stages of the growing season.

Another important difference we have brought to the program this year (2006 wheat season) is the control of over wintering sites. We have placed a great deal of emphasis in showing farmers how they can reduce the over wintering population, thereby reducing the ultimate infestation of their wheat fields. The picture on the right shows how the grass verges of farmlands and canals was burnt in an effort to destroy the Sunn Pest adults hibernating there.



f. Vineyard Trellising systems



One of the most outdated and labor intensive systems that Afghan farmers still use are the mud wall trellises for



vineyards. This involves the digging of trenches and using the ground from the trench to build mud wall. The vine is then planted in the trench, which is also used as the furrow when irrigating. (Pictured on the right)





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CADG has introduced concrete poles and wire to establish trellis systems, because these poles are extremely solid, and have a long life expectancy. Although their construction and transport is time consuming and fairly costly they are better than the wooden poles available. We are currently investigating possibilities of importing metal poles from Pakistan to speed up installation and perhaps reduce the cost; 1 hectare costs \$2500 to trellis. The main benefit of these new trellis systems is better aeration of the vines and grapes, which reduce the chance of rot, and of course there is less dust or mud that can come into contact with the grapes. Over the years farmers have been reluctant to install trellis systems due to the high initial cost, but after seeing the advantages over the mud walls farmers are starting to risk investing in these trellis systems. Many farmers that have seen the effect of these trellis systems would like to give up using mud walls, but can't make the investment as the break-even on such an investment is only in year 6 after establishment. Besides which, it is going to be a while until farmers see the full effect of these trellis systems for the newly established vines are only expected to produce yields in the 3rd and 4th year after establishment.

g. Research Farm

Due to the short term nature of the RAMP contract there was no need for a research farm to be established. Fortunately CADG has established the Bolan Research Farm under its USAID Cooperative agreement funding. The results from the Bolan research farm have played an integral part in introducing new crops and varieties to southern Afghanistan. Without applied research it would have been very difficult and certainly much slower for CADG to have achieved the results it has. RAMP has had the full benefit of all the applied research done there over the past 4 years.

On the research farm the following activities have been carried out, namely:

- New crops are introduced to southern Afghanistan.
- Variety trials, comparing different varieties to traditional ones.
- Fertilization trials, comparing different rates of fertilizer and the effect on yield.
- 'Best practice' trials, comparing recommended best agricultural management practices to traditional practices.
- Fruit and Ornamental tree and Grape vine nursery to produce trees and vines for supplying to the farmers and communities.



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h. CADG Radio Programs

CADG has set up a regular radio program to educate the local community on and update farmers on new farming practices and upcoming dangers that could cause harm to their crops. The radio program has been a huge success and is well received in the more remote areas of Helmand and Kandahar provinces. Unfortunately due to the mountains in North Helmand and the limited capacity of the radio station output, our programs were not heard in all the areas. Our radio programmer has produced 336 radio programs which have been broadcast on the Helmand radio station and also on the Kandahar radio station. Ramp has been active in upgrading the Helmand radio station and as a result they were able to afford a more powerful transmitter in early 2005. Below is the studio and production room at the Helmand radio station.



Based on some small surveys into the districts and the feed back from the extension workers we estimate that our broadcasts are heard daily by about 70% of the Helmand Population estimated at 750,000 (WFP, UNHAS, 2002). It is estimated that we have around 82 000 adult farmers in Helmand.

CADG had a regular daily, half hour slot (sometimes up to an hour), where various programs covering topics from health to agriculture were broadcast. Programs are developed from reading material, mostly in English, which is then translated into Pashto. Tapes were made of the Helmand broadcast and sent to Kandahar for broadcast in the following week. Below are just a few of the topics covered:

- Agriculture Broadcast Programs - Sesame crop cultivation; needed factors for crop growth; Cumin





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economic value; Peanut as a good oil crop.

- Women association broadcast programs - The causes of crimes on women; the difficulties of Women in our country; Women have a key role in social life; the role of a Mother as a good trainer for children.
- Public Health programs - Diarrhea as a serious disease in children in warm weather; Family has a great role in children sanitation; Causes of bones' weak growth; HIV / Aids information.
- Drug control programs - Campaign against drugs, terrorism and weapons must strongly be followed; the dangers of addiction; Poppy cultivation is not as political weapon; UN Agencies try to decrease opium in Afghanistan.
- Veterinary science programs - Sheep pox disease; Fowl pox in poultry; Factors of animal diseases; Dairy cows' breeding.
- Agriculture interviews' programs - Interview with a farmer about cotton in Nawa district; Interview with a farmer about peanut in Bolan village; Interview with a farmer about vineyard in Qala- Bost area; Interview with a farmer about drip irrigation in cotton in Kopaka village.

i. Far East Market report

CADG employed the services of Mr Thomas J. Payne to conduct a market survey in the Far East Markets. The following countries were included in the study, namely Japan, Taiwan, South Korea, Malaysia and China.



This project is designed as practical research on prospects for importation and usage of various Afghan produced fresh, semi-processed, and processed agricultural products in various markets of Asia. Although the study covers a wide range of products, most attention was paid to products with logical potential in the markets. The researcher has worked in the Asian market for the past 20 years on dried and fresh fruits, and vegetables for the past 20 years. (Raisins, blueberries and other items) For this study, we have conducted desk research and have also visited each market first hand to validate information. It is extremely difficult to launch new products into these markets, and we have worked to give some inside information, tips and advantages to exploit for market development.



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The study highlighted the following issues which need to be addressed before Afghan produce will be accepted into these markets:

- The quality of Afghan produce still has a long way to go before being acceptable in the high end markets.
- There is already an initial acceptance of Afghan pomegranates and dark raisins.
- There is a demand for the by products of agricultural produce, like pomegranate juice, and these should be investigated.
- Afghan traders and producers need much more exposure to the customers and the markets before they will fully understand the requirements.
- Packaging and presentation of produce needs to be addressed to improve the visual impact of Afghan produce; specifically having packaging that can stand up to the long arduous trip to the markets.
- Afghan traders should penetrate new markets gradually to ensure that mistakes are not made that could spoil the relationship between the customer and Afghan produce. These markets are fickle and a mistake could mean losing the market entirely.

For more detail please refer to the full report on the CADG website www.central-asia.net

Section 4 – Processing Achievements

a. On Farm Training in processing Techniques

Various training demonstrations have been established to teach farmers in how to sort, grade, dry, pack, and store apricots, raisins, and pomegranates. It has been a learning experience for both the farmers and our CADG staff, who have had to overcome many obstacles that the country has presented. We have also conducted 35 field days but towards the end of the program the field days, where farmers are invited to view and learn about new technology, seed, or practices, have had to be cancelled due to increasing security problems. Extension workers have had to adapt to the more exhaustive task of meeting with farmers on a one-to-one basis to transfer this knowledge.

b. Dried Apricots

In June 2005, 30 farmers and 5 traders have been trained in the proper drying and sulphuring methods





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to improve the quality of the dried apricots. Since then the farmers and traders have been drying, sorting and packing the apricots. It was our hopes to send these products to export markets, but due to the low international prices and high local,

farm gate prices due to the small crop, no exporting has been undertaken. We continue to monitor world markets in hopes of finding lucrative markets for dried apricots.

Our initial expectation is that these trained farmers will produce 50 metric ton of dried apricots. To date these CADG trained farmers have produced 87.21 metric tons of Dried Apricots, which has exceeded our expectations. Farmers are showing great promise in growing and drying the apricots, however farmers need to be continually monitored to ensure proper methods are being followed to clean, sort, grade, and store the dried apricots.



Dry Apricot Trainees					
No	Farmers Trained in Zabul	Apricot produced (Kg)	Traders trained in Zabul	Apricot Produced (Kg)	Ext. Worker trained in Apricot drying Zabul and Nawzad
1	Haji Abdul Ghafor Khan	7200	Haji Dilawor	2250	Haji Baz Mohd
2	Amo khan	6750	Gulab Shah	1125	Mirwais
3	Musa Jan	1350	Mohd Tahir	1800	Khalilullah Stanakzai
4	Ali Mohd	5850	Esmatullah	3600	Abdul Razaq
5	Assadullah	2700	Mirwais	2025	Sardar Mohd
6	Baredad	3600			Pashtoon
7	Haji Abdul Hadi	450			Mohd Sadiq
8	Nek Nazar	2700			Bahawodin
9	Shaista Khan	3600			Emadudin
10	Ibrahim	675			
11	Abdul Samad	2250			
12	Khudaidad	3150			
13	Haji Fida Mohd	1800			
14	Abdullah Jan	2700			
15	Allah dad	1800			
16	Malang	1350			
17	Rabani	3600			
18	Rahmatullah	7200			
19	Habibullah	3600			
20	Abdul Satar	450			
21	Haji Ghulam Yahya	2250			
22	Mohd Nabi	3150			
23	Abdul Ghafar	900			
24	Abdul Mateen	1800			
25	Fida Mohd	810			
26	Fazal Rahman	900			
27	Zulmay Khan	675			
28	Lal Mohd	1800			
29	Yar Mohd Khan	810			
30	Niamatullah	540			
TOTAL		76410		10800	
Grand total		87210			



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c. Raisins

Raisins can only be exported profitably when the local farm gate price of the unprocessed raisin is low. In times of glut these prices are sufficiently low to allow for exports. Under Ramp we have been searching for traders that need assistance to gain access to world markets, as well as getting existing raisin factories back into production. Due to low world market prices these traders and factory owners have not been very keen to get started. To date CADG have exported, under the USAID program, 1238 tons of Afghan Raisins, but due to the increase in the local price of raisins, and the short supply (2004 crop) only 25 tons of Afghan Raisins were exported in 2005. RAMP has not seen any exports as a result of the high local prices and the fact that local farmers have not been able to produce really good quality raisins that are of high enough quality to export. Farmers still need more training in sorting, packaging, and grading raisins and new varieties need to be introduced to Afghanistan to increase the quality of these raisins.

CADG has under the Ramp program provided extension services to farmers in order to help them improve the quality and cleanliness of their raisins, thereby giving them more opportunities to receive a better price for their raisins and also increase the quality output of the factory, which CADG has improved / upgraded under USAID to process the raisins and dried apricot using female labor to do the washing, sorting and packing. At times over 100 women have been employed. This has required special permission from local elders as it is not accepted in Afghan culture for the women to work. We have given gainful employment to many widowed women, who would otherwise have to rely solely on male members of their family to support them.

d. Pomegranates



In 2003 CADG started with exports of Pomegranates to South East Asia markets under the USAID program. To date the logistics issues have hampered the expansion of the exports under Ramp and only small trial volumes have been exported through USAID each year.

As can be seen from the picture above Afghan Pomegranates had good size and a nice Red color,



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when compared to the Spanish Pomegranates on the left. There is great promise for exporting pomegranates as Afghanistan has excellent conditions and varieties of pomegranates; however more training needs to be done on sorting pomegranates so that farmers learn to differentiate grade A produce, and only export top quality pomegranates.

Section 5 – Marketing Achievements

a. Local Market

We have improved local markets by presenting farmers with planting methods and new technologies such as the plastic tunnels which have enabled the farmer to harvest earlier or later, or have something different to offer the market. This has allowed the farmer achieve higher selling prices for his produce. We have imported seeds from America, India, Pakistan, South Africa and many other countries to ensure that farmers have top quality seeds. In the past farmers have always kept seed from the previous harvest to plant again in the new season. This has led to a gradual decline in the fertility of the seed. By bringing in fresh seed material and allowing it to be multiplied on the demonstration plots we have brought some new genes into the seed pool. The modern world is unfortunately switching to Hybrid seeds which mean that farmers need to buy the seed from Seed Companies that produce the seed under controlled conditions in order to maintain the characteristics for which the seed has been bred. Open pollination, which is the natural way, leads to a loss of the specific characteristics such as high yield, or large grain size, or color that can make the produce sought after. Farmers are realizing the benefit of buying these hybrid seeds, and agricultural input suppliers need to start stocking these seeds.



We have improved the quality of the harvest that the market is selling through the training and the technologies that we have given to the farmers. By encouraging farmers to sort his produce at home and only take 1 grade of produce to the market on any given day will enable him to negotiate a better price for all the grades he has. What we have found was that a farmer was loading the day's harvest onto his cart and taking it around the market place and the traders, seeing only the poor quality produce, would offer him a low



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price for the whole load. Farmers who now separate the good quality from the bad are benefiting by offering the traders a choice. Trellising of vegetables such as Tomato and Cucumber have also led to higher quality being produced as the fruit does not come into contact with the ground.

We have increased market access by building market collection centers in central areas and available to all farmers, allowing all farmers have a place to store crops and sell their produce from.

b. Export Market

It was our hope to introduce Afghan farmers to the world market. We have found that the only products that are of high enough quality to export are also in high demand in Afghanistan resulting in farmers getting just as much income from these products on the local market as they would by exporting it. This is in part because the volume of high quality produce is still fairly limited and it will take some years before there is enough to warrant exporting it, such as the dried apricots.



There are also huge problems in the varieties that the Afghan farmers have selected on their farms. The modern world has very definite, ever changing, tastes and as such demand very specific characteristics from any fruit or vegetables they buy. Most countries involved in export of fruit and vegetables spend vast amounts of time and money on research into new varieties that meet the needs of the consumer.

Afghanistan has been in a vacuum for 20 or 30 years and is way behind. Plum varieties such as Greengage have been off the world market for 10 or 15 years already and wouldn't get a 2nd look on a supermarket shelf. Any program advancing fruit and vegetable export from Afghanistan will need to address this issue. It will take nearly 5 years, after establishment, before the first fruit is really available from this country for export, provided the most modern varieties of each fruit / vegetable kind are selected. In short it is too soon for Afghanistan to start competing with the first world market in the agricultural sector.



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Section 6 – Impact

a. Improved Yield and Income

Winter Crops			Summer Crops		
Crop Name	Total Yield (kg)	Total GROSS Income (USD)	Crop Name	Total Yield (kg)	Total GROSS Income (USD)
Potato	20,393 kg	\$4,200	Cucumber	112,294 kg	\$20,773
Onion	231,764 kg	\$24,434	Tomato	245,028 kg	\$40,252
Wheat	235,476 kg	\$53,601	Eggplant	83,149 kg	\$8,334
White cumin	3,510 kg	\$3,628	Okra	165,957 kg	\$22,888
Flax	819 kg	\$410	Watermelon	337,590 kg	\$22,904
Canola	7,730 kg	\$3,432	Peanut	48,928 kg	\$25,124
Cauliflower	31,435 kg	\$4,979	Corn	134,852 kg	\$17,143
Turnip	28,861 kg	\$1,997	Cotton	71,102 kg	\$20,724
Radish	45,390 kg	\$4,427	Sunflower	4,095 kg	\$3,216
Carrot	66,315 kg	\$5,785	Soy bean	626 kg	\$278
Cabbage	9,729 kg	\$1,359	Red pepper	606 kg	\$606
			Mung bean	18,664 kg	\$5,472
			Sesame	3,849 kg	\$3,306
Total		\$108,253	\$191,020		
Combined Total Income		\$299,274			
Notes:					
Total Yield = Accumulated Yield for all demonstration plots per Crop.					
Total Gross Income = Accumulated Gross income for all demonstration plots per Crop					
Perennial crops - Vineyards, Micro Nurseries and Orchards have not yet reached Harvest stage.					

As can be seen from the table above, RAMP has directly benefited Afghan farmers, in terms of income, by \$299,274. This does not take into account the value of Capital Items and Advice they have received during the RAMP program.

Some outstanding yield improvements have been achieved on our demonstrations, and also some good examples of what not to do. If you look at the corn results below, you will note a big improvement in yield in 2004, but less so in 2005. The reason for this is that we used a 1st generation synthetic corn variety in 2004, and then used the 2nd generation seed in 2005 (i.e. Seed was kept from the harvest in 2004 for use in 2005 as has been the practice of farmers). This proves that the use of hybrid and synthetic seeds definitely improves yields, but also farmers need to adopt the 'Best Practice' and not use 2nd generation seeds but spend a few dollars buying the best quality seeds.



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The results below show the average increase for all plots per crop for the particular season, and do not reflect the highest possible increases in yield.

Yield Improvement Results			
<i>Yield Improvements (%)</i>	<i>Targets (%)</i>	<i>Actual 04 (%)</i>	<i>Actual 05 (%)</i>
• Wheat	• 41	Not Planted	• 52
• Peanut	• 27	• 16	• 22
• Cotton	• 30	• 57	• 56
• Black Mung Bean	• 29	• 31	Not planted
• Green Mung Bean	• 31	• 42	• 51
• Sesame	• 30	• 20	• 71
• Corn	• 29	• 216	• 60
• Tomato	• 14	• 32	• 6
• Watermelon	• 30	• 55	• 38
• Eggplant	• 20	• 0	• 39
• Onion	• 50	• 0	• 83
• Canola	• New Crop	• 0	• 2
• Okra	• 0	• 86	• 128
• Cucumber	• 0	• 20	• 2

For complete results on a crop by crop basis please refer to the Excel file – CADG RAMP Demonstration Yields. Each sheet contains the complete results for each plot. Unfortunately not all 2006 crops have completed their season at the time of writing and their detail is not complete.

b. Costs and NET Income

For each crop we have established best practices and the average demonstration cost of following these practices. The next 2 tables contain the costs for Summer and Winter crops. This has not been calculated for perennial crops yet as we have none that are bearing any fruit yet. For full details of actual costs per demonstration, please refer to the Excel file – CADG RAMP Demonstration Costs. Crop by crop detail will be found here. Please note that the 2006 crop will not have complete data as the season is still in progress at the time of writing this report.





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Summer Crop Best Practices Demonstration Cost											
Crop	Seed Rate/Kg per Hectare	Total Cost (US\$ /Hectare)									
		Seed Price	Plow	Ridges	Fertilizer		Weeding (once or twice)	Pest & Disease	Leveling	Picking & Threshing	Total Cost per Hectare
					Urea	DAP					
Peanut	50	30	90		60	140	80	20	It will depend on the land conditions, and is normally not needed.	This cost is borne by the farmer.	420
Corn	45	13.5	90		60	140	40	20			364
B Mung Beans	35	28	90		30	140	40	10			338
Cotton	60	18	90	60	60	140	80	20			468
Watermelon	4	80	90	60	90	140	40	30			530
Tomato	0.5-1	40	90	60	90	140	80	30			530
Okra	8	8	90	60	90	140	80	20			488
Onion	5	40	90		60	140	80	10			420
Sesame	22.5	13.5	90		90	70		10			274
Melon	4	80	90	60	90	140	40	30			530

Winter Crop Best Practices Demonstration Cost											
Crop	Seed Rate/Kg per Hectare	Total Cost (US\$ /Hectare)									
		Seed Price	Plow	Ridges	Fertilizer		Weeding (once or twice)	Pest & Disease	Leveling	Picking & Threshing	Total Cost per Hectare
					Urea	DAP					
Cauliflower	1-1.5	40	90	60	60	140	80	20	It will depend on the land conditions, and is normally not needed.	This cost is borne by the farmer.	490
Cabbage	1-1.5	40	90	60	60	140	80	20			490
Carrot	6-5	30	90	60	60	140	40	10			430
Radish	10	100	90	60	60	140	40	10			500
Turnip	4-3	40	90	60	60	140	40	10			440
Polato	1800	108	90	60	60	140	40	10			508
Onion	5	40	90		60	140	80	10			420
White & Black Cumin	12.5	25	90		30	70	40	10			265
Flax	40	12	90		60	140	40	10			352
Canola	10	4	90		60	140	40	20			354
Vineyard	2220 rooted cuttings	888	90	222	60	140	40	60			1500
Orchards	600 saplings	600	90	60	60	140	40	40			1030
Wheat	125	39.2	90		60	140		20			349
Micro Nursery	175	210	90	60	60	140	240	20			820

c. Improved Farming Practice

A total 1277 demonstration crops have been established under Ramp since the start of the program in March 2004, encompassing a total of 352.79 hectares in Helmand(1017, 291.58 ha), Kandahar(208, 49.52 ha) and Zabul(52, 11.39 ha). These demonstrations have introduced the Afghan farmers to a wide range of different types of crops and seed varieties and





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farming practices. By following the examples CADG has set on these demonstrations farmers can improve their own crop productions.

In order to produce the most profitable crops best practices are used to manipulate the environment and plant to maximize the production with the minimum input of money and other resources. Sunlight, heat, water, air, nutrients, and pests control are all resources that 'Best practices' use to ensure the crop reaches its full potential. Crops are planted at specific distances apart from one another and on certain parts of the farm where the micro climate better suits the plants for optimal growth.

CADG encourages the use of plastic tunnels to protect crops from frost damage and control the heat and humidity that the crops get when planted inside the plastic tunnel. Practices such as weeding and drip irrigation are needed to ensure proper balance of water and oxygen in the soil in order for the roots to prosper. Proper fertilizer application is required to maintain the correct balance of nutrients available to the plants, ensuring that crops are getting all 16 nutrients that they need to fully produce the maximum yield and growth.

CADG continues to do research on the severity of the different pest problems in Afghanistan, and educate farmers on best methods to deal with each pest problem they encounter. It is an unfortunate side effect of farming that there will always be a need for farmers to use some form of chemical control, if they intend producing 1st grade produce. Under USAID policy CADG has not been able to properly advise farmers on the use of chemicals. We have, however, spent time educating farmers on the safe use of chemicals as there has been large scale abuse of chemicals in Afghanistan, due mainly to the illiteracy and lack of proper education by the suppliers of these chemicals. Incorrect selection of suitable chemicals has been a huge problem we have noticed, with farmers selecting based on price rather than the efficacy.

For our demonstration plots we have only used chemicals when required to prevent the destruction of our plots and in the process taught farmers the difference between chemicals and their safe use.

Over the period of the Ramp program CADG staff and International consultants have refined the 'best practices' for each crop we have demonstrated. These 'best practices' reflect the practices that are suitable for Afghan conditions and will serve the needs of the subsistence farmer. As farming is a process of 'working with nature' these best practices will remain in a constant flux and are not cast in stone. No two seasons will be exactly alike and farmers need to adapt constantly to meet nature's challenges.





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Summer Crops Best Practices										
Crop Name	Variety	Sowing Date	Seed Rate/J	Spacing (cm) Plant/Row	Fertilizers	Sowing Method	Fertilizer Application Time	Sowing Dept (cm)	No of Plant per Jerib	No of Irrigation
Peanut	Jumbo	April, May	12 Kgs	PxP =30-50cm RxR =75-100cm	DAP = 50 Kgs Urea = 25 Kgs	Ridges	DAP at the sowing time & Urea along the season, 2 times	4 - 8 cm	5,882	10 - 12.
Corn	Synthetic	May	8 Kgs	Broad cast & ridges	DAP = 25 Kgs Urea = 50 Kgs	Broad cast & ridges	DAP at the sowing time & Urea along the season, 2 times	4 - 8 cm	5,882	9 - 12.
B Mung Beans	Selected local	May	5 - 7 Kgs	Broad cast	DAP = 25 Kgs Urea = 25 Kgs	Broad cast	DAP at the sowing time & Urea along the season, 2 times	2 - 4 cm	5,882	8 - 10.
Cotton	Acala DP 6204	April, May	12 Kgs	PxP =30-40cm RxR =75cm	DAP = 50 Kgs Urea = 50 Kgs	Furrow & ridges	DAP at the sowing time & Urea along the season, 2 times	4 - 10 cm	7,619	9 - 12.
Watermelon	Charleston gray	April	0.5 - 0.8 Kgs	PxP =50cm RxR =2 m	DAP = 50 Kgs Urea = 75 Kgs	Furrow & ridges	DAP at the sowing time & Urea along the season, 2 times	2 - 6 cm	200,000	12 - 15 .
Tomato	Pearson	March, April	0.1 Kg	PxP =50cm RxR =100cm	DAP = 50 Kgs Urea = 75 Kgs	Furrow, transplanting	DAP at the sowing time & Urea along the season, 3 times	1 - 3 cm	5,333	12 - 15 .
Okra	Haryali, Clemson spineless	March, April	2 - 3 Kgs	PxP =30cm RxR =75cm	DAP = 50 Kgs Urea = 75 Kgs	Furrow, direct sowing	DAP at the sowing time & Urea along the season, 3 times	2 - 4 cm	8,889	10 - 12.
Onion	Red stone, Texas Grano	Feb, march, Sep, Oct	1.5 - 2 Kgs	PxP =5-8cm RxR =30cm	DAP = 50 Kgs Urea = 50 Kgs	Rows, transplanting	DAP at the sowing time & Urea along the season, 2 times	0.5 - 1 cm	111,111	14 - 16.
Sesame	Selected local	May	4 - 5 Kgs	Broad cast	DAP = 25 Kgs Urea = 25 Kgs	Broad cast	DAP at the sowing time & Urea along the season, 2 times	1 - 4 cm	5,882	5 - 7.
Melon	Selected local	April	0.4 kg	PxP =50cm RxR =2 m	DAP = 50 Kgs Urea = 75 Kgs	Furrow, ridges	DAP at the sowing time & Urea along the season, 3 times	2 - 6 cm	200,000	12 - 15.





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Winter Crops Best Practices										
Crop Name	Variety	Sowing Date	Seed Rate/J	Spacing (cm) Plant X Row	Fertilizers	Sowing Method	Fertilizer Application Time	Sowing Dept (cm)	No of Plant per Jerib	No of Irrigation
Cauliflower	1 Snow drift white mountain. 2 F1 Hybrid	Mid July (Nursery)	100g/J (Nursery)	40 x 70	50 kg DAP, 25 Kg Urea	Furrow, Mound (seedling)	DAP in the sowing time. Urea after 30 days of sowing	1 cm	7142	12 -14
Cabbage	Copenhagen market	Mid July (Nursery)	100g/J (Nursery)	35 x 70	50 kg DAP, 25 Kg Urea	Furrow, Mound (seedling)	DAP in the sowing time. Urea after 30 days of sowing	1 cm	8163	12 -14
Carrot	1 Danvers half long. 2 Red carrot seeds	Late July 15, August	1 Kg (direct sowing)	4 x 50	50 kg DAP, 25 Kg Urea	Furrow, Mound (direct seeding)	DAP in the sowing time. Urea after 30 days of sowing	1 cm	100000	8 -10
Radish	Mino early long white (Japan)	Late July 15, August	1 Kg (direct sowing)	5 x 50	50 kg DAP, 25 Kg Urea	Furrow, Mound (direct seeding)	DAP in the sowing time. Urea after 30 days of sowing	1-2 cm	80000	6 - 8
Turnip	Purple top white glove	Late July 15, August	1 Kg (direct sowing)	5-10 x 50	50 kg DAP, 25 Kg Urea	Furrow, Mound (direct seeding)	DAP in the sowing time. Urea after 30 days of sowing	1 cm	80000-40000	6 - 8
Potato	KCM	10 Jan, 1 Feb	360 kg (direct sowing)	30 - 80	50 kg DAP, 50 Kg Urea	Mound	DAP in the sowing time. Urea after 30 days of sowing	8-10 cm	-	10 - 12
Onion	Texas Grano	1 Nov, 15 Dec	1 kg (nursery)	10 x 30	75 kg DAP, 50 Kg Urea	Line	DAP in the sowing time. Urea after 30 days of sowing	1 cm	66666	14 - 16
White & Black Cumin	Local	Dec	2-3 kg (direct)	Broadcast	25 kg DAP, 25 kg Urea	Broadcast	DAP in the sowing time. Urea at the end of winter	-	-	-
Flax	Kundoz	15 Nov, 15 Dec	8-10 kg (direct)	Broadcast	50 kg DAP, 50 Kg Urea	Broadcast	DAP in the sowing time. Urea at the end of winter	-	-	-
Canola	Flint	15 Nov, 15 Dec	2 kg (direct)	Broadcast	50 kg DAP, 50 Kg Urea	Broadcast	DAP in the sowing time. Urea at the end of winter	-	-	-
Wheat	1 Amu. 2 Roshan	15 Nov, 30 Dec	25-28 kg (direct)	Broadcast	50 kg DAP, 75 Kg Urea	Broadcast	DAP in the sowing time. Urea at the end of winter	-	-	-
Micro Nursery	Bitter apricot seed	15 Nov. Dec.	35 kg	10 - 75 cm	50 kg DAP, 50 Kg Urea	Furrow Ridge	DAP in the sowing time. Urea after 45 days.	5 cm	26666	-



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d. Long term breakeven for Orchard and Vineyard

CADG has over time collected sufficient data to produce the following table which estimates the number of years it will take for a farmer to get some return on his investment if he were to plant 1 hectare of long term horticultural crops – orchards or vineyards. As has been stated the establishment of these crops is expensive and the first income can only be expected in year 3 or 4.

Almonds show the earliest breakeven in year 5, but this is a very risky crop to grow as the crop is often wiped out by late spring frosts. Grapes are probably the most stable crop farmers can consider growing and it only reaches breakeven in year 6 after planting.

The following assumptions have been made:

- There is no 'cost of money' (interest is not allowed under Islamic law)
- All plots will be established with drip irrigation
- Average costs and prices are used, based on our experience across all districts.
- Average expected yields are used.

	All Costs and Income are on a per Hectare basis								
	Establishment cost	Annual Net Income Year 1	Annual Net Income Year 2	Annual Net Income Year 3	Annual Net Income Year 4	Annual Net Income Year 5	Annual Net Income Year 6	Annual Net Income Year 7	Annual Net Income Year 8
Grapes	\$ 6,982	\$ -1,510	\$ -1,660	\$ -1,783	\$ 1,565	\$ 9,473	\$ 9,473	\$ 9,473	\$ 9,473
Apricot	\$ 3,605	\$ -1,375	\$ -1,458	\$ -1,513	\$ -1,663	\$ -426	\$ 478	\$ 1,383	\$ 2,287
Plum	\$ 3,950	\$ -1,410	\$ -1,510	\$ -1,533	\$ -246	\$ 664	\$ 1,508	\$ 2,352	\$ 2,352
Prune	\$ 3,950	\$ -1,410	\$ -1,510	\$ -1,533	\$ -640	\$ 383	\$ 1,508	\$ 2,633	\$ 3,758
Peach	\$ 4,199	\$ -1,448	\$ -1,567	\$ -1,660	\$ 2,073	\$ 5,551	\$ 5,551	\$ 5,551	\$ 5,551
Almonds	\$ 3,950	\$ -1,410	\$ -1,510	\$ -1,533	\$ 2,896	\$ 7,576	\$ 17,138	\$ 17,138	\$ 17,138

	Break even - Accumulative costs and income on a per Hectare basis							
	End Year 1	End Year 2	End Year 3	End Year 4	End Year 5	End Year 6	End Year 7	End Year 8
Grapes	\$ -8,492	\$ -10,152	\$ -11,935	\$ -10,370	\$ -897	\$ 8,577	\$ 18,050	\$ 27,523
Apricot	\$ -4,980	\$ -6,438	\$ -7,950	\$ -9,613	\$ -10,039	\$ -9,561	\$ -8,178	\$ -5,891
Plum	\$ -5,360	\$ -6,870	\$ -8,403	\$ -8,649	\$ -7,985	\$ -6,477	\$ -4,125	\$ -1,773
Prune	\$ -5,360	\$ -6,870	\$ -8,403	\$ -9,043	\$ -8,660	\$ -7,152	\$ -4,519	\$ -761
Peach	\$ -5,647	\$ -7,214	\$ -8,874	\$ -6,801	\$ -1,250	\$ 4,301	\$ 9,852	\$ 15,403
Almonds	\$ -5,360	\$ -6,870	\$ -8,403	\$ -5,506	\$ 2,069	\$ 19,207	\$ 36,345	\$ 53,483



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e. Capacity Building – Government Extension Worker Program

CADG is committed to building capacity in Afghanistan. As part of our RAMP program, CADG has worked with 8 extension agents from the Helmand Department of Agriculture. These extension agents have worked alongside the experienced team of extension agents that CADG has built during the last two years. Each of the government extension agents receive a per diem for their efforts and at the same time build valuable agricultural skills. In May 2005, three of these extension workers were trained on drip irrigation techniques. The Helmand director and deputy director of Agriculture have also been working closely with CADG Agriculture managers and where possible received training and assistance in order to build on their capacity in Helmand.



Unfortunately the provincial agriculture departments in all the provinces in which CADG is active, still have a long way to go before being able to properly serve their communities, as they do not yet have the capacity or the personnel to actively extend beyond the city centers and into the districts.

f. Capacity Building – Afghan personnel



CADG has concentrated on building the capacity of their Afghan staff and regular training opportunities have been created for Afghan staff. Ayubi Ghani, our research farm manager, is an ex-associate professor of Kabul





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University Agriculture Faculty and presents regular training seminars to the extension workers.

Where possible consultants have been brought to Afghanistan to train and advise the Afghans in new methods and technology, such as the Netafim team that spent nearly 8 months working alongside the Afghans.



The extension workers also have a large audience of farmers and have over the duration of this project visited on average 3547 farmers on their farms each month. Over the duration of the program we have held an average of 2 field days per month with 23 farmers in attendance at each field day. Farmers have also regularly visited our demonstration plots, and we estimate that 13,779 visit our plots each month to follow the progress of our work. This was initially an estimate, but for the past 10 months, farmers have been recording the daily visitors and reporting the numbers to our extension workers. The extension workers have also trained on average 640 farmers each month in one or other technique or skill required to farm 'best practices'.



Together with the exposure we have given our extension workers and that which they in turn have given to the farmers will lead to an increase in adoption rates of our best practices. At this stage our Adoption Rate survey has revealed that farmers have to varying degrees adopted our best practices that are either cheap or easy to follow, but the more expensive

practices such as trellis and drip irrigation show low adoptions – due to the high capital outlay and the long wait before any returns are made.

Building a team of trained extension agents, such as we have, will provide a strong foundation for disseminating best agricultural practices today for future generations. These extension agents will help farmers to adopt best practices that increase production, reduce inefficiencies and therefore increase farmer incomes. This team can't be built up overnight, but takes



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years before farmers fully trust the person giving free advice and we have built such a network of extension agents that is trusted and well respected by the farmers in Helmand, Kandahar, Zabul and Urozgan.

Section 7 – Tasks Completed during the Reporting Period

- Introduced Afghan farmers to new technologies (Drip irrigation, Plastic tunnels, Trellis System, Budding)
- Introduced farmers to new crops and varieties
- Built capacity in the Ministry of Agriculture in Helmand
- Created a network system of extension workers that can reach farmers all over southern Afghanistan (Helmand, Kandahar, Zabul and Urozgan provinces).
- Introduced best agricultural management practices to the farmers, or as it is more commonly referred to 'Best Practices'.
- Educated farmers in pest control and the environmentally safe use of agro chemicals, such as fertilizers.
- Increased Market access both on the local and export markets
- Completed and presented a Far East Market survey to the Ministry of Agriculture (MAAHF) in Kabul
- Established under RAMP 1277 crop demonstrations on 353 hectares of farmland.
- Established under ALQIP 261 crop demonstrations on 152 hectares of farmland.
- Successfully run the Sunn Pest program in 2005 and 2006.





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Section 8 - Performance Indicator Report

Central Asia Development Group
Agriculture Production and Markets

Submission Date: April 30th, 2006

Reporting Period: 1st March 2004 to 30th March 2006.

Location and description				
Province: Helmand/Kandahar		Project Description: <i>Agriculture Market</i>		
Work Progress				
Activity/Performance Indicators	Performance Targets	Accomplishments		
		Previous Month	Current Month	Cumulative To-date
<i>Agriculture Demos</i>				
• # demonstration farms established with 900 crop demos	900			1277
• # Trellis vineyard system demonstrations conducted	50			91
• # improved orchard establish. demonstrations conducted	150			200
• # Drip Irrigation system established	50			136
• # private micro nurseries established	78			78
• # Under plastic tunnels established	72			65
<i>Training</i>				
• # farmers trained overseas in drip irrigation techniques	50			48
• # NGO personnel trained in drip irrigation techniques	40			20
• # Gov. staff trained in drip irrigation techniques	10			8
• # Afghan entrepreneurs trained in food processing	10			30
• # of Field Days	0			35
<i>Processing</i>				
• Mt dried apricot produced	300			87.21
• Mt of nuts exported	300			
• # Private oil extraction factories established	2			
<i>Marketing</i>				
• # marketing contracts signed				5
• # int. markets opened for Afghan products				
• Radio programs conducted	120			336



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Location and description				
Province: Helmand/Kandahar		Project Description: <i>Agriculture Market</i>		
Intermediate Results				
<i>Yield Improvements (%/ha)</i>	<i>Targets</i>	<i>Actual 04</i>	<i>Actual 05</i>	
• Wheat	• 41		• 52	
• Peanut	• 27	• 16	• 22	
• Cotton	• 30	• 57	• 56	
• Black Mung Bean	• 29	• 31	• -	
• Green Mung Bean	• 31	• 42	• 51	
• Sesame	• 30	• 20	• 71	
• Corn	• 29	• 216	• 60	
• Tomato	• 14	• 32	• 6	
• Watermelon	• 30	• 55	• 38	
• Eggplant	• 20	• 0	• 39	
• Onion	• 50	• 0	• 83	
• Canola	• 100	• 0	• 2	
• Okra	• 0	• 86	• 128	
• Cucumber	• 0	• 20	• 2	

Section 9 – Summary of Projects Relationship and Coordination with the Transitional Islamic State of Afghanistan and Appropriate Ministries during the Course of this Project

The CADG currently works or has contact with the following organizations:

- USAID, RAMP, ALQIP, PRT, and other donor agencies such as VARA, Mercy Corps, GIAI, ICARDA, IFDC and Intersos.
- The Agriculture Ministry and Related Ministry of Commerce
- Ministry of Economic Affairs
- Ministry of Interior
- Local Government Authorities
- Relevant NGOs
- Chemical and Pesticide Associations
- Transport Association
- Local Farmer Associations
- Individual Farmers





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Section 10 – Beneficiary Stories and Pictures



A Budder at Work – With the twig from the desired variety in his hand



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Bolan Farm NET House – CADG Research Farm



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Our Agricultural Coordinator, Shah Wali Khan (right), with a farmer who has produced early yields with our early model plastic tunnels and family drip system.



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Sunn Pest Workers receiving Practical Training, Atiqullah Mohibi (right) stressing the value of the equipment supplied by Ramp



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Transportation for 7!!!, passing the PRT mission to distribute some of the materials for Sunn Pest control out in Nad-i-Ali district, Helmand.



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Section 11 –Conclusion : Lessons learnt and Recommendations for the Future

The greatest challenge that we have faced is to get farmers to try out new practices and new technologies. The majority of farmers are subsistence farmers and as such they are fully dependant on their small plots and can not afford to suffer from a crop failure. They also try to fully utilize their land by planting 2 or 3 crops in each calendar year. They would rather accept a mediocre yield than spend any more money than they have to on improving their crops. Only if they are very sure that it works will they invest in the new technology or best practice.

The overly cautious nature of the Afghan farmer is what has enabled them to survive during the war years, but is also holding them back from gaining the full advantage of programs such as Ramp. We have ensured that the farmers learn to trust our extension workers, by being careful not to introduce any new crop that could be risky to the farmer. If there was any doubt about the crop we would first test it on our Research farm, before taking it out into the districts the following season.

For this reason it takes at least 2 years to create enough demonstrations to show the farmers the value of these new technologies. It has been a three year struggle get farmers to take risks, by buying our new technologies for their demonstration plots. After farmers have seen our positive results many new farmers have become excited and are starting to take our advice.

This highlights another problem we faced, namely, the short term nature of the projects. In Agriculture we need to let nature run its course and in the case of the more profitable lines in terms of exports, fruit orchards and vineyards require support for 3 to 4 years before they are self sustaining. If these are not supported they simply fail the moment the support is withdrawn and the farmer has no prospect of any income that season. (Remembering that they are mostly Subsistence farmers)

Pest and viruses have continued to be a huge problem, especially in 2005 resulting in many crop having poor returns. This is mainly due to incorrect or delayed diagnosis of the problem by the farmer. Also due to the poor security situation the mobility and frequency of international experts visiting plots was limited. This often resulted in the problem being diagnosed a week or 2 after the pest had already done the damage and was no longer controllable.

We are having large problems visiting all the districts where we have established demonstration plots due to the low security during the 2005, 2006 years. It is our hopes that as Afghanistan stabilizes there will be more



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opportunities for our extension workers and experts to visit demonstration plots on an even more regular basis to monitor and evaluate the demonstration plots.

As RAMP comes to an end it is a time of reflection on all the goals that have been accomplished under the program. Our key staff has been asked to talk about their personal experiences with RAMP, and what they thought the strengths and weaknesses of the program are. Our Kandahar agricultural coordinator, Mohammad Mohsin, has been happy with the amount of work that the extension workers have made in educating farmers in our best practices. He quotes "The CADG Agricultural staff is working hard inside the districts with farmers...Through our demonstration plots we have reached out to the farmers teaching them crop rotation, irrigation, weeding, land preparation, fertilizer application, disease control, etc. Our Demonstration plots have had a good impact on farmer's professional lives...Farmers are happy [with CADG]; however they feel that the project's term is too short... Farmers have stated that if any donor wishes to establish agricultural programs it should not be for less than five years if they want to see the results of perennial crops under drip irrigation... We have just started creating links between Afghanistan's agriculture products and the international markets. Due to the project ending, we have not yet had many positive results."

Our Research Coordinator, Abdul Ghani Ayubi, is happy with the amount of knowledge that our staff has and how well they are able to present this information to other farmers. "Knowledge and experience of the extension workers and other staff have increased and improved substantially. We now have a highly qualified network which can tackle broad aspects of agriculture... Farmers have learned a lot about improved practices and new technology which will help them to increase their crop yield and improve quality." He feels that there needs to be a greater emphasis on orchards, vineyards, and plastic tunnels in the future and that there is a great need for long term programs of these crops.

Senior Agricultural coordinator for Helmand, Shah Wali, is happy with the positive outcomes of the program saying that "The implementation of RAMP has shown us that we can bring positive changes in our agriculture." Shah Wali recognizes the large impact that our training programs have had on the knowledge of our extension workers. "Short term training agricultural courses held both in and outside the country would refresh our agric employees and keep them up to date with modern trends.

